

PUB717 Environmental Toxicology and Risk Assessment

School: School of Health - Public Health

2027 | Session 1

Online

ONLINE

You can do this course without coming onto campus, unless your program has specified a mandatory onsite requirement.

Please go to usc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

This specialised course examines how environmental contaminants cause harm, and the structured methods to estimate and manage that harm in real-world exposure scenarios. It covers toxicokinetics (toxicant absorption, distribution, metabolism, excretion) and toxicodynamics (toxicant effects). You will learn how environmental toxicology complements epidemiology in providing risk-based evidence to inform safe exposure standards and risk communication, and is central to regulatory and policy frameworks used by agencies to protect public and environmental health.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
ONLINE			
Online – 11 hours of structured asynchronous online learning materials and an optional 1 hour online drop in consultation session.	12hrs	Week 1	6 times

1.3. Course Topics

- Introduction to the principles and uses of toxicology and health risk assessment frameworks
- Issue identification and problem formulation
- Hazard identification and sources of data
- Dose response assessment, including toxicodynamics, toxicity-testing, selecting critical endpoints and approaches to deriving points of departure (NOAEL vs BMD)
- Exposure assessment - environmental and bio-monitoring, toxicokinetics and modes of action
- Risk characterisation – Establishing Health-Based Guideline Values (Acceptable Daily Intakes, Maximum Residue Limits, Hazard Quotients)
- Rigour and transparency - acknowledging assumptions and dealing with uncertainty
- Risk evaluation and communication
- Emerging trends in environmental toxicology and risk assessment

2. What level is this course?

700 Level (Specialised)

Demonstrating a specialised body of knowledge and set of skills for professional practice or further learning. Advanced application of knowledge and skills in unfamiliar contexts.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES		GRADUATE QUALITIES
On successful completion of this course, you should be able to...		Completing these tasks successfully will contribute to you becoming...
1	Source and critically evaluate toxicological evidence underpinning an environmental health risk assessment.	Knowledgeable Creative and critical thinker Empowered
2	Apply the risk assessment framework to characterise levels of risk associated with a specific environmental toxicant.	Knowledgeable Creative and critical thinker Empowered
3	Evaluate the significance of a specific toxicant exposure scenario.	Knowledgeable Creative and critical thinker Ethical Sustainability-focussed

5. Am I eligible to enrol in this course?

Refer to the [UniSC Glossary of terms](#) for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1. Pre-requisites

Enrolled in any Postgraduate Program

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

Early formative feedback will be provided for both tasks. Further details will be provided on Canvas.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Artefact - Technical and Scientific, and Written Piece	Individual	60%	3000 words	Week 4	Online Submission
All	2	Oral	Individual	40%	20 minutes	Week 6	Online Submission

All - Assessment Task 1: Environmental health risk assessment report

GOAL:	To demonstrate your knowledge and understanding of toxicological principles and skills in conducting and communicating a screening level risk assessment for a specific environmental toxicant.																			
PRODUCT:	Artefact - Technical and Scientific, and Written Piece																			
FORMAT:	<p>You will source, synthesise and appraise relevant scientific data and information relevant to each of the 4 steps of risk assessment and communicate the findings in a written scientific report suitable for a professional health regulator audience.</p> <p>You will select a specific environmental toxicant for this task which will need to be approved by the course coordinator. You will then source, summarise and critically appraise scientific evidence relevant to and presented under the following risk assessment steps (Hazard Identification, Dose-response assessment, Exposure assessment and Risk characterisation). The report will conform with specific guidelines provided and tables and figures will be required.</p> <p>Further information will be provided on Canvas.</p> <p>This report should be included in your Professional Environmental Health e-portfolio.</p>																			
CRITERIA:	<table border="1"> <thead> <tr> <th>No.</th> <th></th> <th>Learning Outcome assessed</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Nature and quality of the scientific evidence sourced</td> <td>1</td> </tr> <tr> <td>2</td> <td>Degree of synthesis and critical evaluation of evidence relevant to each step of risk assessment</td> <td>1</td> </tr> <tr> <td>3</td> <td>Accuracy of content for each step of the risk assessment framework</td> <td>2</td> </tr> <tr> <td>4</td> <td>Effectiveness of integrated tables and figures to summarise key findings</td> <td>2</td> </tr> <tr> <td>5</td> <td>Quality of written communication, including mechanics of spelling, grammar, punctuation and adherence to genre</td> <td>2</td> </tr> </tbody> </table>	No.		Learning Outcome assessed	1	Nature and quality of the scientific evidence sourced	1	2	Degree of synthesis and critical evaluation of evidence relevant to each step of risk assessment	1	3	Accuracy of content for each step of the risk assessment framework	2	4	Effectiveness of integrated tables and figures to summarise key findings	2	5	Quality of written communication, including mechanics of spelling, grammar, punctuation and adherence to genre	2	
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GENERIC SKILLS:	Communication, Organisation, Information literacy																			

All - Assessment Task 2: Professional oral presentation

GOAL:	To analyse and communicate levels of health risk for a defined real-world environmental exposure scenario.													
PRODUCT:	Oral													
FORMAT:	<p>You will produce a recorded 20-minute, oral presentation that builds on the generic risk assessment of your chosen toxicant from Task 1. You will nominate a specific community likely to be exposed to your toxicant and cover the following three elements.</p> <ol style="list-style-type: none"> Synthesise evidence and use judgement to characterise the current situation (risk levels) by: <ol style="list-style-type: none"> 1.1 Estimating the likely levels of exposure to the toxicant by members of your defined community, and 1.2 Estimating the prevalence of health conditions shown to be associated with the toxicant within your designated community. Distinguish the key roles and responsibilities of a range of stakeholder groups/agencies for managing the health risks faced by members of your community. Outline further research needs that would better inform risk reduction strategies. <p>Further information will be provided on Canvas.</p>													
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2	Degree of innovation in the synthesise of toxicological evidence, exposure and health data, and contextual factors into scenario-specific risk insights	3												
3	Quality of the design and delivery of the professional oral presentation	3												
GENERIC SKILLS:	Communication, Problem solving, Applying technologies, Information literacy													

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

There are no required/recommended resources for this course.

8.2. Specific requirements

Students will be required to have a reliable Internet connection, a computer, a microphone headset and a webcam for Technology Enabled Learning and Teaching Activities.

9. How are risks managed in this course?

Health and safety risks for this course have been assessed as low. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the [online induction training for students](#), and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

- (a) The final mark is in the percentage range 47% to 49.4%; and
- (b) The course is graded using the Standard Grading scale

10.3. Assessment: Submission penalties

Late submissions may be penalised up to and including the following maximum percentage of the assessment task's identified value, with weekdays and weekends included in the calculation of days late:

- (a) One day: deduct 5%;
- (b) Two days: deduct 10%;
- (c) Three days: deduct 20%;
- (d) Four days: deduct 40%;
- (e) Five days: deduct 60%;
- (f) Six days: deduct 80%;
- (g) Seven days: A result of zero is awarded for the assessment task.

The following penalties will apply for a late submission for an online examination:

Less than 15 minutes: No penalty
From 15 minutes to 30 minutes: 20% penalty
More than 30 minutes: 100% penalty

10.4. SafeUniSC

UniSC is committed to a culture of respect and providing a safe and supportive environment for all members of our community. For immediate assistance on campus contact SafeUniSC by phone: [07 5430 1168](tel:0754301168) or using the [SafeZone](#) app. For general enquires contact the SafeUniSC team by phone [07 5456 3864](tel:0754563864) or email safe@usc.edu.au.

The SafeUniSC Specialist Service is a Student Wellbeing service that provides free and confidential support to students who may have experienced or observed behaviour that could cause fear, offence or trauma. To contact the service call [07 5430 1226](tel:0754301226) or email studentwellbeing@usc.edu.au.

10.5. Study help

For help with course-specific advice, for example what information to include in your assessment, you should first contact your tutor, then your course coordinator, if needed.

If you require additional assistance, the Learning Advisers are trained professionals who are ready to help you develop a wide range of academic skills. Visit the [Learning Advisers](#) web page for more information, or contact Student Central for further assistance: +61 7 5430 2890 or studentcentral@usc.edu.au.

10.6. Wellbeing Services

Student Wellbeing provide free and confidential counselling on a wide range of personal, academic, social and psychological matters, to foster positive mental health and wellbeing for your academic success.

To book a confidential appointment go to [Student Hub](#), email studentwellbeing@usc.edu.au or call 07 5430 1226.

10.7. AccessAbility Services

Ability Advisers ensure equal access to all aspects of university life. If your studies are affected by a disability, learning disorder mental health issue, injury or illness, or you are a primary carer for someone with a disability or who is considered frail and aged, [AccessAbility Services](#) can provide access to appropriate reasonable adjustments and practical advice about the support and facilities available to you throughout the University.

To book a confidential appointment go to [Student Hub](#), email AccessAbility@usc.edu.au or call 07 5430 2890.

10.8. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit <https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

10.9. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The [Student Charter](#) sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

10.10. General Enquiries

In person:

- **UniSC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **UniSC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **UniSC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **UniSC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **UniSC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **UniSC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

Tel: +61 7 5430 2890

Email: studentcentral@usc.edu.au